21 February 2007

Mr. Joseph Brown
Environmental Specialist
Ocean State Power
1575 Sherman Farm Road
Harrisville, RI 02830

Dear Mr. Brown:

Ocean State Power submitted to the Department of Environmental Management, Office of Air Resources an application for a minor modification to its current major source permit (RI-PSD-1) and its current operating permit (RI-15-06). The requested modification is to allow discretionary burning of low sulfur fuel oil at your facility.

The Office of Air Resources has determined, based upon its review of your application and consideration of the public comment received, that the application should be approved. All of the public comment received was in support of the application and there were no recommendations for any changes to either the draft major source permit or the draft operating permit.

Enclosed are a revised major source permit and a revised operating permit issued pursuant to our review of your request.

I can be reached at 401-222-2808, extension 7011 if there are any questions.

Sincerely,

Douglas L. McVay
Associate Supervising Engineer
Office of Air Resources

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

MAJOR SOURCE PERMIT

OCEAN STATE POWER

RI-PSD-1

Pursuant to the provisions of Air Pollution Control Regulation No. 9, this major source permit is issued to:

Ocean State Power

For the following:

A permit modification to allow Ocean State Power to burn No. 2 fuel oil on a discretionary basis in each of the four combustion turbines.

Located at: *1575 Sherman Farm Road, Harrisville*

This permit shall be effective from the date of its issuance and shall remain in effect until revoked by or surrendered to the Department. This permit does not relieve *Ocean State Power* **from compliance with applicable state and federal air pollution control rules and regulations. The design, construction and operation of this equipment shall be subject to the attached permit conditions and emission limitations.**

Stephen Majkut, Chief
Office of Air Resources

Date of issuance

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR RESOURCES

Permit Conditions and Emissions Limitations
OCEAN STATE POWER

RI - PSD - 1
(Revised February 2007)

A. Emission Limitations - Turbines

1. Natural Gas Firing

a. Nitrogen oxides (as nitrogen dioxide (NO_2)

1. The concentration of nitrogen oxides discharged to the atmosphere from each flue shall not exceed 9 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average).

2. The emission rate of nitrogen oxides discharged to the atmosphere from each flue shall not exceed 37.4 lbs/hr. when both turbines in a two-turbine combined cycle system are operating, nor exceed 53.0 lbs/hr. when only one turbine in that two turbine combined cycle system is operating.

b. Carbon Monoxide (CO)

1. The concentration of carbon monoxide discharged to the atmosphere from each flue shall not exceed 20 ppmv, on a dry basis, corrected to 15 percent O_2 (24 hour block average beginning at 0800).

2. The emission rate of carbon monoxide discharged to the atmosphere from each flue shall not exceed 46.8 lbs/hr. when both turbines in a two-turbine combined cycle system are operating, nor exceed 64.8 lbs/hr. when only one turbine in that two turbine combined cycle system is operating.

c. Sulfur Dioxide (SO_2)

1. The emission rate of sulfur dioxide discharged to the atmosphere from each flue shall not exceed 0.0027 lbs per million BTU heat input (HHV) or a maximum of 3.1 lbs/hr., whichever is more stringent, when both turbines in a two turbine combined cycle system

are operating.

2. The emission rate of sulfur dioxide discharged to the atmosphere from each flue shall not exceed 0.0027 lbs per million BTU heat input (HHV) or a maximum of 4.2 lbs/hr., whichever is more stringent, when only one turbine in a two turbine combined cycle system is operating.

d. Particulate Matter

1. The emission rate of particulate matter discharged to the atmosphere from each flue shall not exceed 0.01 lbs per million BTU heat input (HHV) or a maximum of 11.5 lbs/hr, whichever is more stringent, when both turbines in a two turbine combined cycle system are operating.

2. The emission rate of particulate matter discharged to the atmosphere from each flue shall not exceed 0.01 lbs per million BTU heat input (HHV) or a maximum of 18 lbs/hr., whichever is more stringent, when only one turbine in a two turbine combined cycle system is operating.

e. Total Nonmethane Hydrocarbons (NMHC)

1. The concentration of total nonmehtane hydrocarbons discharged to the atmosphere from each flue shall not exceed 4.1 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average).

2. The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from each flue shall not exceed 4.7 lbs/hr. when both turbines in a two turbine combined cycle system are operating, nor exceed 7.2 lbs/hr. when only one turbine in that two turbine combined cycle system is operating.

f. Ammonia (NH_3)

1. The concentration of ammonia discharged to the atmosphere from each flue shall not exceed 30 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average).

2. The emission rate of ammonia discharged to the atmosphere from each flue shall not exceed 54 lbs/hr. when both turbines in a two turbine combined cycle system are operating, nor exceed 65 lbs/hr. when only one turbine in that two turbine combined cycle system is

operating.

2. Fuel Oil Firing

a. Nitrogen Oxides (as nitrogen dioxide (NO_2)

1. The concentration of nitrogen oxides discharged to the atmosphere from each flue shall not exceed 18 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average)

2. The emission rate of nitrogen oxides discharged to the atmosphere from each flue shall not exceed 81.6 lbs/hr.

3. The total quantity of nitrogen oxides discharged to the atmosphere from the four combustion turbines combined, during discretionary oil firing, shall not exceed 4000 lbs per calendar month based upon a 12-month rolling average.

b. Carbon Monoxide (CO)

1. The concentration of carbon monoxide discharged to the atmosphere from each flue shall not exceed 30 ppmv, on a dry basis, corrected to 15 percent O_2 (24 hour block average beginning at 0800).

2. The emission rate of carbon monoxide discharged to the atmosphere from each flue shall not exceed 81.7 lbs/hr.

c. Sulfur Dioxide (SO_2)

1. The owner/operator shall not use fuel oil in any turbine or store fuel oil for use in any turbine with a sulfur content greater than 15 ppm by weight.

2. The emission rate of sulfur dioxide discharged to the atmosphere from each flue shall not exceed 1.85 lbs/hr.

d. Particulate Matter

The emission rate of particulate matter discharged to the atmosphere from each flue shall not exceed 0.01 lbs per million BTU heat input (HHV) or a maximum of 11.5 lbs/hr whichever is more stringent.

e. Total Nonmethane Hydrocarbons (NMHC)

1. The concentration of total nonmethane hydrocarbons discharged to the atmosphere from each flue shall not exceed 7.2 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average).

2. The emission rate of total nonmethane hydrocarbons discharged to the atmosphere from each flue shall not exceed 10.3 lbs/hr.

f. Ammonia (NH_3)

1. The concentration of ammonia discharged to the atmosphere from each flue shall not exceed 30 ppmv, on a dry basis, corrected to 15 percent O_2 (1 hour average).

2. The emission rate of ammonia discharged to the atmosphere from each flue shall not exceed 50.3 lbs/hr.

3. Co-firing - Natural Gas and Oil

During periods when the combustion turbine is firing natural gas and fuel oil simultaneously, the emission limitation for nitrogen oxides, carbon monoxide, sulfur dioxide, particulate matter, total nonmethane hydrocarbons and ammonia, shall be determined by the following equation:

$$E_{co} = \frac{(E_{gas})(H_{gas}) + (E_{oil})(H_{oil})}{H_{gas} + H_{oil}}$$

where:

E_{co} =emission limitation (ppm, lb/hr or lb/MMBTU) during co-firing of natural gas and fuel oil

E_{gas} =emission limitation (ppmv, lb/hr, or lb/MMBTU) during natural gas firing

H_{gas} =heat input from the combustion of natural gas (MMBTU)

E_{oil} =emission limitation (ppmv, lb/hr, or lb/MMBTU) during fuel oil firing

H_{oil} =heat input from the combustion of fuel oil (MMBTU)

B. Emission Limitations - Duct Burners

1. Natural Gas Firing

a. Nitrogen Oxides (as nitrogen dioxide (NO_2)

The emission rate of nitrogen oxides from each duct burner shall not exceed 0.1 lbs per million BTU heat input (HHV) or a maximum of 38 lbs/hr., whichever is more stringent.

b. Particulate Matter

The emission rate of particulate matter from each duct burner shall not exceed 0.03 lbs per million BTU heat input (HHV) or a maximum of 11.4 lbs/hr., whichever is more stringent.

c. Sulfur dioxide (SO_2)

The emission rate of sulfur dioxide from each duct burner shall not exceed 0.2 lbs per million BTU heat input (HHV) or a maximum of 76 lbs/hr., whichever is more stringent.

C. Operating Requirements

1. Oil use, for the combustion turbines, shall be limited to that needed to maintain oil system readiness and times when natural gas is unavailable and, during the period 1 October to 30 April, on a discretionary basis as limited by this permit. This limitation on discretionary oil burning shall not apply to oil burned when natural gas is unavailable or when operating to maintain oil system readiness. Maintenance of oil system readiness is limited to burning oil for the purposes of ensuring adequate fuel flow, monitoring and adjusting operating parameters and testing emissions.

Natural gas shall be deemed unavailable only in cases of interruption in supply or transportation resulting from equipment failure, regulatory actions or interruption of supply outside of the control of the owner/operator. Natural gas shall be deemed unavailable during instances where the gas pressure in the gas pipeline drops below 350 psig at the plant boundary. Operation during gas pipeline low pressure incidents shall follow the procedures in Condition I.1 - I.5.

Natural gas shall be deemed unavailable if:

a. ISO-New England has declared a “Cold Weather Event” pursuant to Market Rule 1, Appendix H, “Operations During Cold Weather Conditions”. The

permittee may utilize fuel oil for each Operating Day (12AM-12PM) that this condition exists; or,

b. ISO-New England has declared a "Cold Weather Watch" or a "Cold Weather Warning" pursuant to Market Rule 1, Appendix H, "Operations During Cold Weather Conditions" and either ISO-New England has forecast ISO New England Operating Procedure No. 4 conditions in its Morning Report or as revised/updated during the Operating Day, or has taken any action under ISO New England Operating Procedure No. 4. The owner/operator may utilize fuel oil for the 24-hour period between issuance of the Morning Reports (9AM Day 1 to 9 AM Day 2) that this condition exists.

Natural gas shall not be deemed unavailable on the basis of any increase in the cost of supply or transportation or allocation of available natural gas to other facilities within the control of the owner/operator.

If the primary natural gas supply is unavailable, the owner\operator will make all reasonable efforts to promptly obtain other natural gas supplies via the Tennessee or Algonquin pipelines.

If natural gas is unavailable, the owner/operator may utilize fuel oil, with a sulfur content of 15 ppm or less by weight, as a replacement fuel.

2. In no event shall the hours of operation on oil exceed 1200 hours per turbine in any consecutive 12 month period for conditions where natural gas is deemed unavailable.

3. The duct burners shall be fired with natural gas only.

4. Visible emissions from any stack at this facility shall not exceed 10% opacity except for a period or periods aggregating no more than three minutes in any one hour.

5. The owner/operator shall limit the combined quantity of fuel oil combusted during discretionary oil burning to 4,539,000 gallons or less for any consecutive 12-month period.

D. Continuous Monitors

1. Continuous emission monitoring equipment shall be installed, operated and maintained for opacity, nitrogen oxides, carbon monoxide and oxygen.

2. The continuous monitors must satisfy EPA performance specifications in 40 CFR 60, Appendix B.

3. Performance specifications, monitor location, calibration and operating procedures

and quality assurance procedures for each monitor must be submitted to the Office of Air Resources for review and approval at least 180 days prior to expected start-up.

4. All data shall be monitored and recorded continuously.

5. Natural gas and fuel oil flows to each turbine and the duct burners shall be continuously measured and recorded.

6. A method for monitoring and recording ammonia concentrations in the turbine flue gases shall be proposed for the Office of Air Resources' approval and implementation.

7. Catalyst bed temperature shall be continuously measured and recorded.

8. The facility shall have the capability of transmitting all of the collected continuous monitoring data to the Office of Air Resources' office via a telemetry system. The owner/operator must provide all of the necessary funds for installation and operation of this equipment. A plan for accomplishing this must be submitted to the Office of Air Resources for review and approval prior to installation of the equipment and at least 180 days prior to expected start-up. This plan shall also define procedures to test and protect the integrity of transmitted data.

9. The nitrogen oxides emissions measurements recorded and reported in accordance with subsection 41.10 of Air Pollution Control Regulation No. 41 shall be used to determine compliance with the nitrogen oxides emission limitation in conditions A.2.a.1-3.

E. Stack testing

1. Within 180 days of start-up, initial performance testing shall be conducted for each turbine. Performance testing shall be conducted for nitrogen oxides, carbon monoxide, particulate matter (total and PM-10), non methane hydrocarbons, sulfur dioxide, and ammonia.

2. A stack testing protocol shall be submitted to the Office of Air Resources for review and approval prior to the performance of any stack tests. The owner/operator shall provide the Office of Air Resources at least 60 days prior notice of any performance test.

3. All test procedures used for stack testing shall be approved by the Office of Air Resources prior to the performance of any stack tests.

4. The owner/operator shall install any and all test ports or platforms necessary to conduct the required stack testing, provide safe access to any platforms and provide

the necessary utilities for sampling and testing equipment.

5. Initial performance testing shall be conducted when burning natural gas and when burning fuel oil. All testing shall be conducted under operating conditions deemed acceptable and representative for the purpose of assessing compliance with the applicable emission limitation.

6. A final report of the results of stack testing shall be submitted to the Office of Air Resources no later than 45 days following completion of the testing.

7. All stack testing must be observed by the Office of Air Resources or its authorized representatives to be considered acceptable.

F. Recordkeeping and Reporting

1. The owner/operator shall maintain a record of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for each continuous monitor.

2. The owner/operator shall, on a monthly basis, no later than five (5) business days after the first of the month, determine the total quantity of nitrogen oxides discharged to the atmosphere from the four combustion turbines combined, during discretionary oil burning, for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

3. The owner/operator shall, on a monthly basis, no later than five (5) business days after the first of the month, determine the total quantity of fuel oil combusted during discretionary oil burning for the previous month. The owner/operator shall keep records of this determination and provide such records to the Office of Air Resources upon request.

4. The owner/operator shall notify the Office of Air Resources, in writing, after an exceedance of any emission limitation is discovered. This notification shall be made within five (5) days of the exceedance. Notification shall be provided on forms furnished by the Office of Air Resources and must provide all of the information requested on the form.

5. The owner/operator shall notify the Office of Air Resources, in writing, after the discovery that a continuous emission monitor has malfunctioned. This notification shall be made within five (5) days of when the continuous emission monitor malfunctioned. Notification shall be provided on forms furnished by the Office of Air Resources and must provide all of the information requested on the form.

6. The owner/operator shall notify the Office of Air Resources, in writing, whenever

the combined quantity of fuel oil combusted during discretionary oil burning exceeds 4,539,000 gallons for any consecutive 12-month period.

7. The owner/operator shall notify the Office of Air Resources of any anticipated noncompliance with the terms of this permit or any other applicable air pollution control rules or regulations.

8. The owner/operator shall maintain the following records for each turbine:

   - The hours of operation, including any start up, shut down or malfunction in the operations of the facility.
   - The date, start time, end time and amount of fuel used for any period when fuel oil is burned. Records must indicate whether fuel oil was burned under discretionary oil burning, during the unavailability of natural gas or to maintain oil system readiness.
   - If co-firing natural gas and fuel oil, the heat input (MMBTU) from the combustion of each fuel.
   - The calculated emission limitations for each pollutant when co-firing.
   - Any malfunction of the air pollution control system.

9. The owner/operator shall notify the Office of Air Resources of the anticipated date of the initial start-up not more than 60 days nor less than 30 days prior to such date.

10. The owner/operator shall notify the Office of Air Resources in writing of the date construction of the facility commenced no later than 30 days after such date.

11. The owner/operator shall notify the Office of Air Resources in writing of the date of actual initial start-up no later than fifteen days after such date.

12. The owner/operator shall notify the Office of Air Resources in writing of any physical or operational change to the facility which may increase the emission rate of any air pollutant. Such notification shall include:

    - Information describing the nature of the change.
    - Information describing any planned changes to the air pollution control system.
    - Information describing the effect of the change on the throughput capacity of the facility.
    - The expected completion date of the change.

    Such a change shall be consistent with the appropriate regulations and be subject to approval of the Director.

13. The owner/operator shall notify the Office of Air Resources in writing of the date

upon which initial performance testing of the continuous emission monitors commences at least 30 days prior to such date.

14. The owner/operator shall notify the Office of Air Resources prior to burning fuel oil in any turbine. Such notification shall include:

- The date and time fuel oil burning is expected to commence
- The reasons for the fuel oil burning (unavailability of natural gas or discretionary oil burning)
- The anticipated length of time fuel oil will be burned

This requirement for prior notification does not apply to those times when oil is burned to maintain oil system readiness

15. The owner/operator shall submit a written report of excess emissions as measured by a continuous emission monitor for every calendar quarter. All quarterly reports shall be received no later than 30 days following the end of each calendar quarter and shall include the following information:

- The date and time of commencement and completion of each time period of excess emissions and the magnitude of the excess emissions.
- Identification of the suspected reason for the excess emissions and any corrective action taken.
- The date and time period any continuous emission monitor was inoperative, except for zero and span checks and the nature of system repairs or adjustments.

When none of the above items have occurred, such information shall be stated in the report.

16. All records required in this permit shall be maintained for a minimum of three years after the date of each record and shall be made available to representatives of the Office of Air Resources upon request.

17. Deviations from permit conditions shall be reported to the Office of Air Resources, in writing, within five (5) business days of the deviation. Reports shall describe the probable cause of such deviations and any corrective actions or preventative measures taken.

G. Other Permit Conditions

1. There shall be no by passing of the air pollution control equipment during start-up, operation or shutdown. Ammonia will not be injected during start-up or shutdown unless the catalyst bed is at, or above, the manufacturer's specified minimum operating temperature.

2. An operation and maintenance plan for the facility must be submitted to the Office of Air Resources at least 180 days prior to start-up of the facility.

3. The facility shall be designed, constructed and operated consistent with the representation of the facility in the PSD permit application.

4. Except for the circumstances described in paragraph a. below, a malfunction of any air pollution control equipment that would result in the exceedance of any emission limitation in this permit will necessitate the shut down of the unit(s) which would cause the exceedance. The unit(s) must remain shutdown until the malfunction has been identified and corrected.

   A shutdown will not be necessitated under the following circumstances:

   a. If during a malfunction that would cause an exceedance of any applicable 1-hour average emission limitation, the emissions, when averaged over an 8-hour period beginning with the hour in which the malfunction occurred, do not exceed the applicable limitation.

5. Employees of the Office of Air Resources and its authorized representatives shall be allowed to enter the facility at all times for the purpose of inspecting any air pollution source, investigating any condition it believes may be causing air pollution or examining any records required to be maintained by the Office of Air Resources.

6. The owner/operator shall have each delivery of fuel oil analyzed for sulfur content. The fuel oil must be sampled and analyzed according to ASTM methods which have the prior approval or are required by the Director. Records of the fuel oil analyses shall be maintained by the owner/operator.

7. This facility is subject to the requirements of the Federal New Source Performance Standards 40 CFR 60, Subparts A (General Provisions), Da (Electric Utility Steam Generating Units) and GG (Stationary Gas Turbines). Compliance with all applicable provisions of these regulations is required.

8. Construction access and circulation routes shall be provided a temporary crushed gravel or pavement surface.

9. All construction related travel routes, exposed or excavated areas, shall be watered down as frequently as necessary to minimize dust.

10. Construction vehicles transporting loose aggregate shall be covered with a tarpaulin or similar dust resistant membrane.

11. Construction vehicle operating speeds shall be controlled to minimize generation of dust.

12. All construction related open storage areas and/or piles of soil, aggregates or any other dust producing material shall be covered or watered down as necessary to prevent generation of dust.

13. Any spillage from construction trucks or other construction equipment on any public street shall be removed promptly.

14. The natural gas fired in each turbine shall be analyzed daily for sulfur content every six months. Sampling and analysis shall be conducted using either ASTM reference methods D1072-80, D3031-81, D3246-81, D4084-82 or other EPA approved methods. Fuel sampling of the natural gas for nitrogen content is waived in its entirety if the facility continues to use pipeline quality natural gas.

15. The applicant must file applications for approval to construct/install and receive approval prior to construction/installation of the following equipment:

    (i) the combustion turbine(s)
    (ii) the heat recovery steam generator(s)
    (iv) the SCR system(s)

    Each application must be submitted at least 120 days prior to the anticipated date of construction/installation.

16. During the first year of operation of the facility, the owner/operator shall sample and analyze the cooling tower water influent for total chromium and hexavalent chromium. Samples shall be taken daily and composited and analyzed monthly. The results of this analysis shall be submitted to the Office of Air Resources quarterly. The Office of Air Resources may continue this sampling and analysis requirement beyond the first year's operation at it's discretion, in consideration of the results.

H. Startup/Shutdown Conditions and Initial Commissioning

1. Turbine startup/shutdown shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. This period shall not exceed 60 minutes for a hot start, 180 minutes for a warm start, nor

240 minutes for a cold start. A warm start shall be defined as startup when the generating unit has been down for more than 2 hours and less than or equal to 48 hours. A cold start shall be defined as startup when the generating unit has been down for more than 48 hours. Unit shutdown shall be defined as that period of time from steady state operation to cessation of combustion turbine firing. This period shall not exceed 60 minutes.

2. Initial turbine commissioning shall be defined as the first 200 hours of combustion turbine operation following initial startup or to commercial acceptance whichever is less.

3. The emission limitations of Conditions A.1 and A.2 shall not apply during turbine startup/shutdown conditions or each turbine's initial commissioning.

4. The emission limitations of Conditions A.1.b and A.2.b shall not apply during equipment cleaning, e.g. on-line washing of the turbine.

5. The owner/operator shall submit to the Office of Air Resources for review and approval, at least 180 days prior to startup, the procedures to be followed during turbine startup/shutdown conditions and initial turbine commissioning. The procedures shall be designed to minimize the emission of air contaminants to the maximum extent practical.

I. Gas Pipeline Low Pressure Incidents

Natural gas shall be deemed unavailable during instances where the gas pipeline pressure drops below 350 psig at the plant boundary. Operation during gas pipeline low pressure incidents shall follow the following procedures:

1. The fuel oil system shall be prepared for operation when the gas pipeline pressure drops to 375 psig.

2. One combustion turbine will be transferred over to fuel oil firing when the gas pipeline pressure drops to 350 psig. The remaining combustion turbines will continue to operate on natural gas.

3. The facility shall continue to operate in this mode if the gas pipeline pressure stabilizes at or near 350 psig.

4. A second combustion turbine will be transferred to fuel oil if the gas pipeline pressure continues to drop. This procedure will continue until either the gas pipeline pressure is stabilized or all four combustion turbines have been transferred to fuel oil,

5. Once the gas pipeline pressure returns to 375 psig or higher, the combustion turbines will be transferred back to natural gas.